



ELECTRONIC MATERIALS
CIRCUIT BOARD TECHNOLOGIES

CIRCUPOSIT™ MLB CONDITIONER 211

For PWB Metallization Applications

DESCRIPTION

For use with Circuposit 880 Electroless Copper.

Circuposit MLB Conditioner 211 is the first step of the desmear process for plating through-hole printed circuit boards. Circuposit MLB Conditioner 211 effectively cleans, conditions and activates hole-wall surfaces for optimum treatment by Circuposit MLB Promoter 213 or 214.

ADVANTAGES

- Prepares resin surfaces for efficient and complete treatment in Circuposit MLB Promoter 213
- Enhances resin removal for desmear
- Long life
- Steady-state operation

BATH MAKE-UP—FOR 100 LITERS (100 GAL.)

Add in the order listed below, stirring thoroughly between additions.

Deionized (DI) water	76.0 liters (76.0 gal.)
Circuposit MLB Conditioner 211	12.5 liters (12.5 gal.)
Cuposit™ Z	11.5 liters (11.5 gal.)

OPERATING RANGES

	Range	Optimum
Normality	0.8–1.0N	0.9N
Bath Strength	85–110%	100%

BATH OPERATION

Temperature:	75–85°C (167–185°F)
Time:	5–15 minutes
Rinsing:	A double cascade rinse with 20 second drip times over the Circuposit Conditioner 211 bath and each of the rinse tanks is recommended
Filtration:	5–10 micron polypropylene filter is recommended
Ventilation:	Required

BATH CONTROL AND REPLENISHMENT

Prior to sampling solution for analysis, the bath must be adjusted to operating level with deionized water and thoroughly mixed.

Using the supplied analytical procedure, analyze the working bath for normality and replenish with Cuposit Z as directed in the replenishment chart below.

Analyze and adjust the normality before analyzing and adjusting the bath strength.

NORMALITY REPLENISHMENT SCHEDULE

For a 100 liter (100 gallon) bath	
Normality	Cuposit Z Addition
0.95	none
0.90	none
0.85	0.6 liters (0.6 gallons)
0.80	1.2 liters (1.2 gallons)
0.75	1.8 liters (1.8 gallons)

Using the supplied analytical procedure, analyze the working bath for bath strength and replenish with Circuposit MLB Conditioner 211 concentrate as directed in the replenishment chart given below. Analysis and replenishment of Circuposit MLB Conditioner 211 concentrate should be made following any Cuposit Z additions, since normality will affect the bath strength analysis.

CIRCUPOSIT MLB CONDITIONER 211

BATH STRENGTH REPLENISHMENT SCHEDULE

For a 100 liter (100 gallon) bath	
Bath Strength (%)	Circuposit MLB Conditioner
110	none
100	none
90	1.25 liters (1.25 gallons)
80	2.50 liters (2.50 gallons)
70	3.75 liters (3.75 gallons)

YIELD

When operated properly, 17 m² of laminate can be processed per liter of concentrate (1,400 surface square feet/gallon).

PRODUCT DATA

Circuposit MLB Conditioner 211 is a non-turbid aqueous solution containing organic compounds.

Circuposit MLB Conditioner 211

Specific gravity at 20°C: 1.0 (approx.)

Color: Clear, pale yellow

pH: 1.0 (approx.)

Flammability: Nonflammable

EQUIPMENT

Tanks:	Polypropylene, titanium, stainless steel
Heaters:	Teflon or Teflon-coated
Racks:	Stainless steel
Filter Media:	Polypropylene

CAUTION! When using immersion heaters, failure to maintain proper volume level can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

NORMALITY CONTROL PROCEDURE

I. Principle

Normality is determined by direct pH titration with hydrochloric acid using a pH 5.1 indicator.

II. Reagents

- a) Hydrochloric acid (HCl), 0.10N, standardized
- b) pH 5.1 indicator: mix 3 parts of 0.1% bromocresol green (in alcohol) and 2 parts of 0.1% methyl red (in alcohol)

III. Procedure

- a) Pipette a 1.0 ml sample of Circuposit MLB Conditioner 211 bath into a 250 ml Erlenmeyer flask.
- b) Add approximately 100 ml of DI water.
- c) Add 10 drops of pH 5.1 indicator.
- d) Titrate against 0.1N hydrochloric acid to the first permanent pink end point. The color change will be from blue to pink.
- e) Record the number of ml of HCl titrated.

IV. Calculation

$$\text{Bath Normality} = \frac{\text{ml of HCl} \times \text{N of HCl}}{\text{sample size (1.0 ml)}}$$

BATH STRENGTH CONTROL PROCEDURE

I. Principle

Bath strength is determined by the refractometric method.

II. Equipment

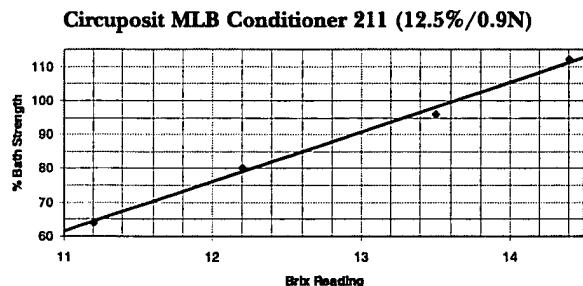
The Reichert T/C Hand Refractometer Model 10430 is used. Brix is the unit of measurement on the scale. Model 10430 reads in the range of 0-30 Brix degrees; the smallest division is 0.2°.

III. Procedure

- a) Ensure the prism surface is clean and free of residues.
- b) Place a drop or two of the bath (at room temperature) on the prism using the dipstick. Close the cover plate over the prism without delay.
- c) Place finger(s) on cover plate and press the plastic cover gently, but firmly, to have an even layer on the prism.
- d) Point the instrument towards a light source.
- e) Take the reading at the point where the dividing line between light and dark fields crosses the scale.
- f) Repeat two or three times and take the average Brix reading.

CIRCUPOSIT MLB CONDITIONER 211

Determine the bath strength (%) by comparing the Brix reading with the following graph.



HANDLING PRECAUTIONS

Before using this product, consult the Material Safety Data Sheet for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

STORAGE

Store products in tightly closed original containers at temperatures recommended on the product label.

DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

CIRCUPOSIT MLB CONDITIONER 211**ELECTRONIC MATERIALS****Circuit Board Technologies****CMP Technologies****Microelectronic Technologies****Packaging and Finishing Technologies**For locations and information please visit: <http://electronicmaterials.rohmhaas.com>

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